

Cate, Crawford Neil. 1969. Two new species of the genus *Volva* Röding, 1798 (Ovulidae Fleming, 1828). *The Veliger* 11(4):364-366; pl. 56. (1 April 1969)

_____. 1973. A systematic revision of the recent Cypraeid family Ovulidae (Mollusca: Gastropoda). *The Veliger* 15(Supplement):1-116; 51 pls. (31 January 1973)

_____. 1974a. The Ovulidae: a key to the genera, and other pertinent notes (Mollusca: Gastropoda). *The Veliger* 16(3):307-313. (1 January 1974)

_____. 1974b. Five new species of Ovulidae from the western Pacific (Mollusca: Gastropoda). *The Veliger* 16(4):381-384; 1 pl. (1 April 1974)

_____. 1975. New Cypraeacean species (Mollusca: Gastropoda). *The Veliger* 17(3):255-261; 2 pls.; 1 text fig. (1 January 1975)

_____. 1976a. Three new Cypraeacean species (Mollusca: Gastropoda). *The Veliger* 18(4):383-384; 1 pl. (1 April 1976)

_____. 1976b. Five new species on Ovulidae (Mollusca: Gastropoda). *The Veliger* 19(2):159-162; 1 pl. (1 October 1976)

_____. 1978. Recently discovered new species of Ovulidae, chiefly from off Wakayama Prefecture, Japan (Mollusca: Gastropoda). *Japanese Journal of Malacology, Venus* 37(4):191-204; 2 pls. (November 1978)

Emerson, William K. 1978. Mollusks with Indo-Pacific faunal affinities in the eastern Pacific Ocean. *The Nautilus* 92(2):91-96. (27 April 1978)

Emerson, William K. and William E. Old, Jr. 1965. New molluscan records for the Galapagos Islands. *The Nautilus* 78(4):116-120. (April 1965)

Iredale, Tom. 1930. Queensland molluscan notes, No. 2. *Memoirs Queensland Museum* 10(1):73-88; 1 pl. (28 August 1930)

Kay, E. Alison. 1979. *Hawaiian marine shells*. Reef and Shore Fauna of Hawaii. Section 4: Mollusca. Bernice P. Bishop Museum Special Publication 64(4):xviii + 652 pp.; 195 text figs. (December 1979)

Kuroda, Tokubei. 1928. New Japanese Mollusca. *Venus* 1(1):10-15; 1 pl.

Pennant, Thomas. 1777. *British Zoology*. Vol. IV. Crustacea, Mollusca, Testacea. Benjamin White, London viii + 10 + 154 pp.; 93 pls.

Petuch, Edward J. 1979. New gastropods from the Abrrollos Archipelago and reef complex, Brazil. *Proc. Biol. Soc. Washington* 92(3):510-526; 4 text figs. (18 October 1979)

Schilder, M. and F. A. Schilder. 1971. A catalogue of living and fossil cowries. Taxonomy and bibliography of Triviae and Cypraeacea (Gastropoda Prosobranchia). *Institut Royal des Sciences Naturelles de Belgique Memories, Deuxieme Ser.* 85:246 pp. (31 July 1971)

Schumacher, C. F. 1817. *Essai d'un nouveau système des habitations des vers testacés*. Copenhagen, pp. 1-287; 22 pls.

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A NEW *FAVORINUS* (NUDIBRANCHIA: AEOLIDOIDEA) FROM THE CANARY ISLANDS

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ABSTRACT

Favorinus vitreus, a new nudibranch is described from the Canary Islands with a discussion of other Atlantic species.

In July 1980, among material collected from Tenerife, during a trip supported by the Junta de Canarias and La Laguna University, we found 40 species of Ascoglossa and Nudibranchia; of the latter, I collected two specimens of a small *Favorinus* with two white swellings in the rhinophores which is here described as a new species.

Favorinus vitreus n. sp.
(Figs. 1-3)

Type locality: Los Cristianos beach (26°00'N; 16°30'W), Tenerife, Canary Islands, 23 July 1980, two specimens found on the brown algae (*Sargasum* sp. and *Cystoseira* sp.) with small polyzoans and spaws of an undetermined Polyceridae.

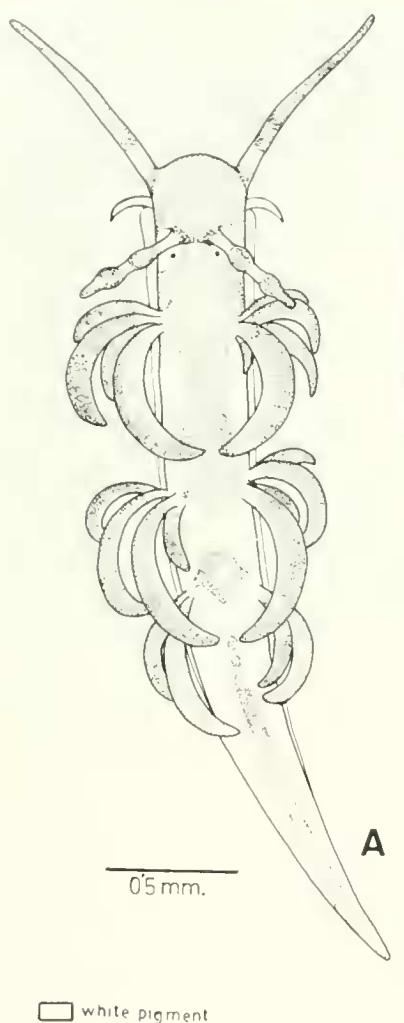


FIG. 1. *Favorinus vitreus* n. sp.: A, dorsal view of living animal; B, rhinophores.

Holotype: 1 deposited in the Museum national d'Histoire Naturelle, Paris.

Description: The two living animals are 3 mm in length; oral tentacles, elongate, 1 mm; rhinophores 0.5 mm; foot 0.3 mm; and cerata up to 0.7 mm. Animals translucent white (glassy) with the head, rhinophores, oral tentacles and cerata white opaque. Body translucent, with an opaque white marking in both specimens. This broad band is discontinuous in one specimen (fig. 1,A) and continuous in the other. Rhinophores have two small and inconspicuous white bulbs (fig.

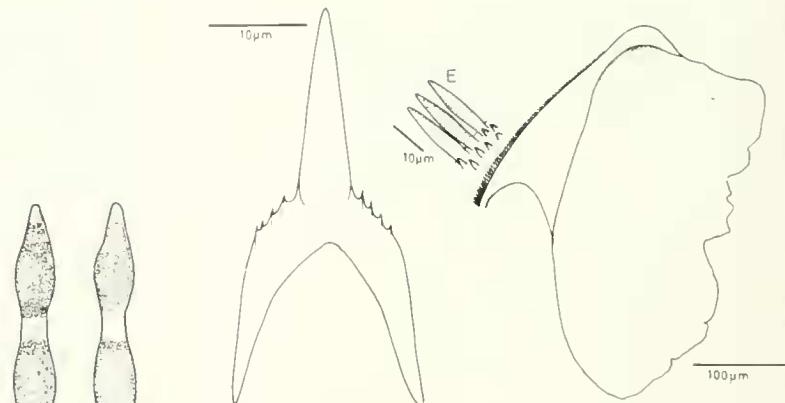


FIG. 2. *Favorinus vitreus* n. sp. Left: radular tooth; right: jaw.

1,B). Cerata arranged in arches in the first and second group; the third and fourth groups arranged in rows. The fifth group is a solitary ceras. The second arch is nearly a row. The number of cerata per a arch or row in the 3-mm-long holotype are as follows: left side: 6, 5, 3, 2, 1; right side: 6, 4, 3, 2, 1.

We have not observed any enidosacs in the cerata. Liver branches in the cerata not visible in the living animal, as the white surface of the cerata is opaque. Liver ducts in body completely transparent. Foot transparent, with two translucent anterior corners. Cardiac area not prominent.

The animal did not autotomize its cerata when it was poked with tweezers, nor when narcotized with magnesium chloride. There is a dorsal indentation to the jaw (fig. 2) the masticatory border is not complete but has several irregular rows of pointed teeth (fig. 2,E). The radula has 17 teeth, 30–35 μm in height. Each tooth has a strong central cusp with four or five acutely pointed denticles on each side (fig. 2). The penis is unarmed.

Derivation of name: This species is called *F. vitreus*, because of the transparency of its body (vitreo = glassy).

Discussion: The Atlantic species of *Favorinus* can be artificially divided into two groups according to the color of the rhinophores:

a) **animals with brown rhinophores.**

F. branchialis (Müller) from Northern Europe

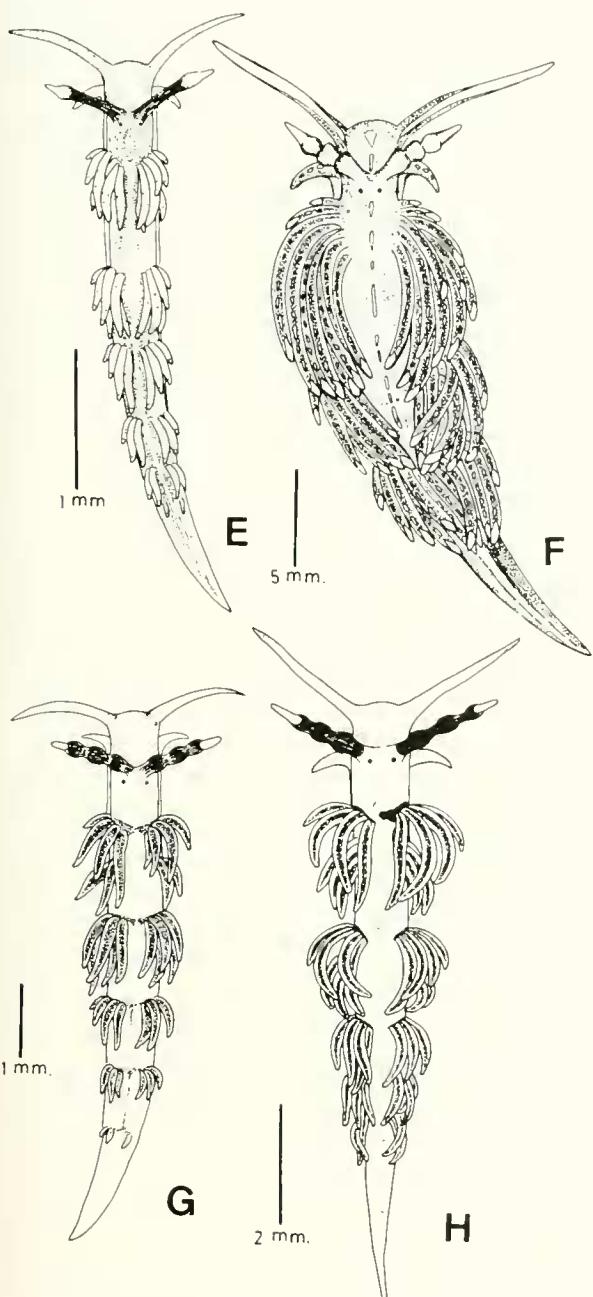


FIG. 3. Atlantic species of *Favorinus*. E, *F. branchialis*, animal from Asturias (northern of Spain); F, *F. blianus*, animal from Galicia (northern Spain); G, *F. auritulus*, drawing adapted from Marcus (1980); H, *F. ghanensis*, drawing adapted from Edmunds (1968).

and the Mediterranean (Thompson & Brown, 1976), Morocco (Pruvot-Fol, 1953) and Cape

Verde Islands (Eliot, 1906 as *F. carneus*), found also in the Canary Islands (personal observation); *F. ghanensis* Edmunds, from Ghana (Edmunds, 1968; 1974); and *F. auritulus* Marcus, from the tropical west Atlantic (Edmunds, 1964; Marcus, 1955; Marcus & Marcus, 1963, 1970; Marcus & Hughes, 1974 and Edmunds & Marcus, 1977) possess brown rhinophores.

b) animals with white rhinophores.

F. blianus Lemche & Thompson (fig. 3, F), from Northern Europe (British Isles and Scandinavia) (Lemche & Thompson, 1974; Hunnam & Brown, 1975), found also in the northern Spain (Ortea & Urgorri, 1981); and *F. vitreus* n. sp. from Tenerife possess white rhinophores. A *Favorinus* sp. which possibly belongs to this second group, has been reported by Eliot (1906, p. 159) from the Cape Verde Islands.

F. blianus differs from *F. vitreus* by having voluminous bulbs on the rhinophores and by the distribution of the white opaque pigment in its body, with discontinuous patches on the cerata and anterior corners of the foot. It also reaches a larger size, and its radular teeth lack denticles on the sides of the large central cusp.

Among the species with brown rhinophores, *F. ghanensis* seems to be a clearly defined species due to its penial stylet and because it feeds upon bryozoans, an exceptional diet for an eolid nudibranch (Edmunds, 1974). However, *F. branchialis* also feeds upon Bryozoa when the edible spawn of opisthobranchs is scarce, as we have been able to observe in Asturias, northern Spain, where it is frequently collected during the winter on *Bugula fastigiata* and *B. fulva*. When *F. branchialis* eats *Bugula*, the color of the liver in its cerata is violet-brown, as in those of *F. ghanensis*. Three rhinophoral bulbs may also be rarely present in *F. branchialis*, so that, the differences between these species is limited to the existence of the penial stylet in *F. ghanensis* and small details of coloration (few white dots on the body of *F. ghanensis*, a dorsal band in *F. branchialis*).

The difference between *F. branchialis* and *F. auritulus* is mainly in the 3 bulbs usually present in *F. auritulus*. The spawn, which may help to separate species, is only known from *F. branchialis*, and it consists in a regular and con-

centric spiral cord (Lovén, 1841; Alder & Hancock, 1845-55; Meyer & Möbius, 1865 and Vayssiére, 1888) with eggs of 65-70 μm in diameter in northern Spain (personal observation), while Haefelfinger (1962) observed eggs of 45-60 μm from a spawn from Villefranche-sur-Mer, Vayssiére (1888) noted eggs of 50 μm from the Mediterranean and Rasmussen (1951) of 70 μm from Copenhagen (Denmark).

RESUMEN

Descripción de una nueva especie, *Favorinus vitreus*, recolectada en Tenerife, islas Canarias, caracterizada por tener rinóforos blancos y con dos bulbos, tentáculos orales largos (1/3 del cuerpo) y ceratas, pigmentados uniformemente de blanco en la superficie.

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LITERATURE CITED

Alder, J. and Hancock, A. 1845-1855. *A monograph of the British Nudibranchiate Mollusca*. London, Ray Society.

Edmunds, M. 1964. Eolid Mollusca from Jamaica, with description of two new genera and three new species. *Bull. Mar. Sci. Gulf, Caribbean* **14**:1-32.

— 1968. Opisthobranchiate Mollusca from Ghana. *Proc. Malac. Soc. London* **38**:83-100.

— 1974. An eolid nudibranch feeding on Bryozoa. *Veliger* **17**:269-270.

Edmunds, M. and Marcus, E. 1977. On *Favorinus auritulus* Marcus and *Favorinus branchialis* (Müller). *J. moll. Stud.* **43**:200-201.

Eliot, C. N. E. 1906. Report upon a collection of Nudibranchiata from the Cape Verde Islands, with notes by C. Crossland. *Proc. Malac. Soc. London* **7**:131-159.

Haefelfinger, H. R. 1962. Quelques faits concernant la nutrition chez *Favorinus branchialis* (Rathke, 1806) et *Stiliger vesiculosus* (Deshayes, 1864), deux mollusques opisthobranches. *Rev. Suisse Zool.* **69**(2):311-316.

Hunnam, P and Brown, G. 1975. Sublittoral nudibranch Mollusca (sea slugs) in Pembrokeshire waters. *Field Studies* **4**:131-159.

Lemche, H. and Thompson, T. E. 1974. Three opisthobranch gastropods new to the British fauna. *Proc. Malac. Soc. London* **41**:185-193.

Lovén, S. I. 1841. Bidrag till Kändedomen of Molluskernas utveckling. *K. Vet. Acad. Handl. Stockholm* **för ar 1839**: 227-241.

Marcus, E. 1955. Opisthobranchia from Brazil. *Bol. Fac. Fil. Cien. Let., Univ. S. Paulo, Brazil, Zoologia* **20**:89-261.

Marcus, E. and Marcus, E. 1963. Opisthobranchs from the Lesser Antilles. Studies on the Fauna of Curaçao and other Caribbean islands. *Stud. Fauna Curaçao* **19**(79):1-76.

— 1970. Opisthobranchs from Curaçao and faunistically related regions. Studies on the Fauna of Curaçao and other Caribbean islands. *Stud. Fauna Curaçao* **33**:1-129.

Marcus, E. and Hughes, H. P. I. 1974. Opisthobranch Mollusks from Barbados. *Bull. Mar. Sci.* **24**:498-532.

Meyer, H. A. and Möbius, K. 1865. Fauna der Kieler Bucht. Die Hinterkeimer oder Opisthobranchier. Leipzig. Engelmann **1**:1-xxx:1-88.

Ortea, J. and Urgorri, V. (1981). Opistobranquios nuevos para el litoral Ibérico colectados en Galicia. *Boletín Instituto Español de Oceanografía* **6**(288):49-60.

Pruvot-Fol, A. 1953. Étude de quelques opisthobranches de la Côte Atlantique du Maroc et du Sénégal. *Trav. Ins. Sci. Chérifien Zool.* **5**:1-105.

Rasmussen, E. 1951. Faunistic and biological notes on marine invertebrates. 2. The eggs and larvae of some Danish marine gastropods. *Vidensk. Meddel. Naturh. Foren.* **113**:201-249.

Thompson, T. E. and Brown, G. H. 1976. British Opisthobranch Molluscs. *Synopses of the British Fauna* (New Series) **8**:1-201.

Vayssiére, A. 1888. Recherches zoologiques et anatomiques sur les mollusques Opisthobranches du Golfe de Marseille. Pt. 2, Nudibranches et Ascoglosses. *Ann. Mus. Hist. Nat. Marseille* **3**(4):1-160.

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